

Amendments to the Claims:

Please use the following listing of claims to replace all prior versions, and listings, of the claims in the above-identified application.

Listing of Claims:

Claims 1-9 (canceled)

Claim 10 (currently amended)

An apparatus comprising:

a pulse source including,

a pulse generator for generating a pulse of photons;

a parametric down-converter for receiving said pulse of photons, wherein photons that make up a portion of said pulse of photons are each parametrically down-converted into first and second photons, in which said first and second photons being such that alteration of a characteristic of one of said first and second photons alters a corresponding characteristic in the other of said first and second photons;

a transmitter for receiving said first photons from said pulse source, said transmitter including a collapse event device for selectably altering said characteristic of said first photon;
and

a receiver for receiving said second photons from said pulse source, said receiver having

a detector to detect alteration of said characteristic of said second photon wherein said receiver includes a nonlinear element for enhancing said detection, [.]

~~The apparatus of claim 1~~

wherein said parametric down-converter further provides photons, that make up another portion of said pulse of photons, that are non down-converted; and

wherein said receiver receives said non down-converted photons to correspond said second photons received by said receiver with said pulse of photons.

Claim 11 (currently amended)

An apparatus comprising:

a pulse source including,

a laser for generating a pulse of photons,

a nonlinear crystal parametric down-converter for receiving said pulse of photons, said parametric down-converter providing non down-converted photons from said pulse of photons and parametrically down-converted signal and idler photons from said pulse of photons, said signal and idler photons each having a center wavelength;

a transmitter for receiving said idler photons from said pulse source, said transmitter including a spectrometer for selectably measuring a frequency of said idler photons, said measuring of said frequency providing an alteration to a majority of said idler photon center wavelengths; and

a receiver for receiving said signal photons from said pulse source and for receiving said non down-converted photons from said pulse source to correspond said signal photons to said pulse of photons, said receiver having a detector for detecting alteration of said center wavelengths of said signal photons, wherein said detector includes at least one photon detector and a nonlinear element for enhancing detection of said alteration of said center wavelength of said signal photons as received by said receiver.

Claim 12 (original)

The apparatus of claim 11 wherein said nonlinear crystal includes a Beta Barium Borate crystal.

Claim 13 (original)

The apparatus of claim 11 wherein said nonlinear element includes dispersive glass.

Claims 14-26 (canceled)

Claim 27 (original)

A method comprising:

projecting a pulse of photons through a nonlinear crystal, wherein photons that make up a portion of said projected pulse are each parametrically down-converted into a signal and idler

photon pair, said portion resulting in a series of signal photons and a series of idler photons, and wherein photons that make up another portion of said projected pulse are non down-converted, resulting in a series of non down-converted photons corresponding to said projected pulse;

projecting to a receiver said series of signal photons and said series of non down-converted photons;

projecting to a transmitter said series of idler photons, said transmitter having a collapse condition path wherein a majority of center wavelengths of said idler photons is altered, resulting in a corresponding change in a majority of center wavelengths of corresponding signal photons as received at said receiver, and a non-collapse condition path wherein said center wavelengths of said idler photons are left unaltered and wherein said corresponding center wavelengths of said signal photons as received at said receiver are left unaltered; and

detecting in said receiver for each projected pulse whether said center wavelengths of said signal photons as received at said receiver have been altered, said step of detecting including projecting said series of signal photons through a nonlinear element and assessing a cumulative time distribution of said series of signal photons as output from said nonlinear element.

Claim 28 (original)

The method of claim 27 wherein said nonlinear element includes dispersive glass.

Claim 29 (original)

The method of claim 27 wherein said nonlinear crystal includes a Beta Barium Borate

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crystal.

Claim 30 (original)

The method of claim 27 wherein said down-conversion in said nonlinear crystal occurs via colinear, non-degenerate, type I phase-matching.

Claim 31 (original)

The method of claim 30 wherein said nonlinear crystal is a Beta Barium Borate crystal.

Claim 32 (original)

The method of claim 27 wherein said second photon has a frequency and wherein said collapse condition occurs when a measurement of said second photon frequency is made.

Claim 33 (canceled)

Claim 34 (currently amended)

The method of claim [33] 32 wherein said frequency measurement includes using a spectrometer.

Claim 35 (original)

The method of claim 27 wherein said step of projecting a pulse of photons includes using

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a laser.

Claim 36 (original)

The method of claim 27 wherein purposeful alteration of said center wavelengths of said idler photons and a lack of purposeful alteration of said center wavelengths of said idler photons is used for communication.